



PTO/SB/08B (08-00)

Approved for use through 10/31/2002. OMB 0651-003

U.S. Patent & Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB number.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets necessary)				COMPLETE IF KNOWN	
				Application Number	10/644,395
				Filing Date	August 19, 2003
				First Named Inventor	Frederik Marcel van der Vliet
				Group Art Unit	2874
				Examiner Name	Wood, Kevin S.
SHEET	1	OF	3	Docket Number	LIGHT2700

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (If known)			
KSW	1	4,747,654		Yi-Yan	May 31, 1988	
KSW	2	4,813,757		Sakanao et al.	March 21, 1989	
KSW	3	4,836,645		Leferve et al.	June 6, 1989	
KSW	4	4,846,542		Okayama et al.	July 11, 1989	
KSW	5	4,956,682		Ohnaka et al.	September 11, 1990	
KSW	6	5,013,113		Soref	May 7, 1991	
KSW	7	5,231,683		Hockaday et al.	July 27, 1993	
KSW	8	5,347,601		Ade et al.	September 13, 1994	
KSW	9	5,511,142		Horie, et al	April 23, 1996	
KSW	10	5,581,643		Wu	December 3, 1996	
KSW	11	5,710,847		Takano et al.	January 20, 1998	
KSW	12	6,278,168 B1		Day	August 21, 2001	
KSW	13	6,393,272 B1		Brinkman et a.	May 21, 2002	
KSW	14	6,885,795		Hsu et al.	April 26, 2005	
KSW	15	6,921,490 B1		Qian et al	July 26, 2005	
KSW	16	2003/0133661A1		Adibi, et al.	July 17, 2003	
KSW	17	2003/0044118A1		Zhou, et al.	March 6, 2003	

FOREIGN PATENT DOCUMENTS								
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Office ³	Number ⁴	Kind Code ⁵ (If known)				
KSW KSW KSW KSW	18	EPO	0849615A2		Alcatel Alsthom Compagnie Generale D'Electricite			
	19	EPO	11064657		Hitachi Cable Ltd.			
	20	JP	04358105A		Fujitsu Ltd.			
	21	JP	63197923		NEC Corp			

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ⁶
KSW	22	ARONSON, L. B. et al., Low-Cost Multimode WDM for Local Area Networks Up to 10 Gb/s, IEEE Photonics Technology Letters, Vol. 10, No. 10, October 1998, pp 1489-1491.	
KSW	23	BABA, S. et al., A Novel Integrated-Twin-Guide (ITG) Optical Switch with a Built-in TIR Region, IEEE Photonics Technology Letters, Vol. 4, No. 5, May 1992, pp 486-488.	
KSW	24	BETTY, I. et al., A Robust, Low-Crosstalk, InGaAsP/InP Total-Internal-Reflection Switch For Optical Cross-Connect Application	
KSW	25	BRENNER, T. et al., Vertical InP/InGaAsP Tapers for Low-Loss Optical Fibre-Waveguide Coupling, Electronics Letters 22 nd October 1992 Vol. 28 No. 22, pp. 2040-2041.	
KSW	26	BURNS, W.K. et al., Mode Conversion in Planar-Dielectric Separating Waveguides; IEEE Journal of Quantum Electronics, VOL QE-11, No.1, Jan 1975; pg 32-39	
KSW	27	DUMBRAVESCU, N., 3-D Resolution Gray-Tone Lithography, Proceedings of SPIE Vol. 4019 (2000) pp. 570-577.	
KSW	28	GOEL, K. et al Design Considerations for Low Switching Voltage Crossing Channel Switches; Journal of Lightwave Technology, VOL 6, No.6, June 1988; pg 881-886	

Kevin S Wood 4/1/06

Under the Paperwork Reduction Action of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB number.

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ₆
KSW	29	GRANESTRAND, P. et al., <i>Integrated Optics 4x4 Switch Matrix with Digital Optical Switches</i> ; Electronics Letters, VOL 26, No.1, Jan 4, 1990; pg 4-5	
KSW	30	HIDA, Y. et al., <i>Highly Compact Silica-Based PLC-type 1x32 Splitters Using 127 μm-spacing Output and 0.4%-Δ Waveguides</i> , Electronics Letters, VOL 34, No.1, Jan 8, 1998; pg 75-76	
KSW	31	HUANG, T.C. et al., <i>Depletion Edge Translation Waveguide Crossing Optical Switch</i> ; IEEE Photonics Technology Letters; VOL 1, No.7, Jul 1989, pg 168-170	
KSW	32	ITO, F. et al., <i>Carrier-Injection-Type Optical Switch In GaAs With A 1.06-1.55 μm Wavelength Range</i> ; Appl. Physics Letters, 54(2) Jan 9, 1989; pg 134-136	
KSW	33	Jeon, S. et al., <i>Simple Fabrication Method for Vertical Taper Using Tensile Stress-Induced Mask and Selective Etching Technique</i> , CLEO Pacific Rim '99 WR8, pp. 320-321.	
KSW	34	KASAHARA, R. et al., <i>Low-Power Consumption Silica-Based 2x2 Thermo-optic Switch Using Trenched Silicon Substrate</i> , IEEE Photonics Technology Letters, VOL 11, No. 9, Sep 1999, pg 1132-1134	
KSW	35	KHAN, M.N. et al., <i>Fabrication-Tolerant, Low-Loss, and High-Speed Digital Optical Switches in InGaAsP/InP Quantum Wells</i> ; Proc 21 st Eur.Conf.on Opt.Comm.(ECOC '95-Brussels), pg 103-106	
KSW	36	KIRIHARA, T. et al., <i>Lossless And Low Crosstalk 4x4 Optical Switch Array</i> ; Electronics And Communications In Japan, Part 2, VOL 77, No.11, 1994, pg 73-81	
KSW	37	KIRIHARA, T. et al., <i>Lossless and Low-Crosstalk Characteristics in an InP-Based 2x2 Optical Switch</i> , IEEE Photonics Technology Letters, VOL 5, No. 9 Sept 1993, pg 1059-1061	
KSW	38	KLEY, et al., <i>Fabrication and Properties of Refractive Micro-Optical Profiles for Lenses, Lens arrays and Beam Shaping Elements</i> , Proceedings of SPIE Vol. 4231 (2000), pp 144-152.	
KSW	39	LIU, Y.L. et al., <i>Silicon 1x2 Digital Optical Switch Using Plasma Dispersion</i> ; Electronics Letters, VOL 30, No.2, Jan20, 1994; pg 130-131	
KSW	40	MOERMAN, I. et al., <i>A Review on Fabrication Technologies for the Monolithic Integration of Tapers with III-V Semiconductor Devices</i> ; IEEE Journal of Selected Topics in Quantum electronics, VOL 3, No.6, Dec. 1997, pg 1308-1320	
KSW	41	MÜLLER, G. et al., <i>First Low Loss InP/InGaAsP Optical Switch with Integrated Mode Transformers</i> ; ThC12.10; Pg 37-40	
KSW	42	NAYYER, J. et al., <i>Analysis of Reflection-Type Optical Switches with Intersecting Waveguides</i> , Journal of Lightwave Technology, VOL 6, No.6, June 1988; pg 1146-1152	
KSW	43	NEGAMI, T. et al., <i>Guided-Wave Optical Wavelength Demultiplexer Using An Asymmetric Y Junction</i> ; Appl. Phys. Lett. 54 (12), Mar 20, 1989; pg 1080-1082	
KSW	44	NELSON, W. et al., <i>Optical Switching Expands Communications-Network Capacity</i> ; Laser Focus World, Jun 1994, pg 517-520	
KSW	45	NELSON, W.H. et al., <i>Wavelength-and Polarization-Independent Large Angle InP/InGaAsP Digital Optical Switches with Extinction Ratios Exceeding 20 dB</i> ; IEEE Photonics Technology Letters, VOL 6, No.11, Nov. 1994; pg 1332-1334	
KSW	46	OKAYAMA, H. et al., <i>8x8 Ti:LiNbO₃ Waveguide Digital Optical Switch Matrix</i> ; IEICE Trans. Commun.; VOL E77-B, No.2; Feb. 1994; pg 204-208	
KSW	47	OKAYAMA, H. et al., <i>Reduction of Voltage-Length Product for Y-Branch Digital Optical Switch</i> , Journal of Lightwave Technology, VOL 11, No.2, Feb 1993; pg 379-387	
KSW	48	PENNINGS E., <i>Integrated-Optic Versus Micro-optic Devices for Fiber-Optic Telecommunication Systems: A Comparison</i> ; Journal of Selected Topics in Quantum Electronics, Vol. 2-No. 2, pp. 151-164.	
KSW	49	REIMER, K. et al., <i>Micro-Optic Fabrication Using One-Level Gray Tone Lithography</i> , SPIE Vol. 3008, pp 279-288.	
KSW	50	REIMER, K. et al., <i>One-Level Gray-Tone Lithography Mask Data Preparation and Pattern Transfer</i> , SPIE Vol. 2783, pp. 71-79.	
KSW	51	RENAUD, M. et al., <i>Compact Digital Optical Switches for Low Insertion Loss Large Switch Arrays on InP</i> ; Proc. 21 st Eur.Conf.on Opt. Comm. (ECOC '95-Brussels), pg 99-102	
KSW	52	RICKMAN, A. G. et al., <i>Silicon-on-Insulator Optical Rib Waveguide Loss and Mode Characteristics</i> , Journal of Lightwave Technology, October 1994, Vol. 12-No. 10, pp 1771-1776.	
KSW	53	ROLLAND, C. et al., <i>10 Gbit/s, 1.56 μm, Multiquantum Well InP/InGaAsP Mach-Zehnder Optical Modulator</i> , Electronics Letters, Mar 4, 1993, VOL 29, No.5, pg 471-472	
KSW	54	SILBERBERG, Y. et al., <i>Digital Optical Switch</i> ; Appl. Phys. Lett.; VOL 51, No.16, Oct 19, 1987, pg 152-154	
KSW	55	SNEH, A. et al., <i>Compact Low Crosstalk and Low Propagation Loss Quantum-Well Y-Branch Switches</i> ; PDP 4-1 - 4-5	
KSW	56	STOLL, L. et al., <i>1:8 Optical Matrix Switch on InP/InGaAsP with Integrated Mode Transformers</i> ; Optical Switches and Modulators II, pg 531-534	

Examiner Signature	<i>Kern & Wood</i>	Date Considered	<i>4/1/06</i>
--------------------	------------------------	-----------------	---------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two letter-code (WIPO Standard ST.3).

⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard St. 16 if possible. ⁶Applicant is to place a check mark here if English language translation is attached.

Under the Paperwork Reduction Action of 1995, no persons are required to response to a collection of information unless it contains a valid OMB number.

KSW	57	SUGITA, A. et al., <i>Very Low insertion Loss Arrayed- Waveguide Grating with Vertically Tapered Waveguides</i> , IEEE Photonics Technology Letters, VOL 12, No. 9, Sept. 2000; pg 1180-1182.	
KSW	58	TADA, K. et al., <i>Bipolar Transistor Carrier-Injected Optical Modulator/Switch: Proposal and Analysis</i> , IEEE Electron Device Letters, VOL EDL-7, No.11, Nov 1986, pg 605-606	
KSW	59	VINCHANT et al, <i>InP 4x1 Digital-Optical-Switch Module For Multiwavelength Cross-Connect Applications</i> ; OFC '95 Technical Digest, Thursday ThK2, pg 281-282	
KSW	60	VINCHANT, J.F. et al., <i>First Polarisation insensitive 4x4 Switch matrix on InP with Digital Optical Switches</i> , TuB7.3, pg 341-344	
KSW	61	VINCHANT, J.F. et al., <i>InP Digital Optical Switch: Key Element for Guided- Wave Photonic Switching</i> ; IEE Proceedings-J, VOL 140, No.5, Oct 1993; pg 301-307	
KSW	62	VINCHANT, J.F. et al., <i>Low Driving Voltage or Current Digital Optical Switch on InP for Multiwavelength System Applications</i> ; Electronics Letters, VOL 28, No.12, Jun 4, 1992; pg 1135-1137	
KSW	63	WANRU, Z. et al., <i>Total Internal Reflection Optical Switch with Injection Region Isolated by Oxygen Ion Implantation</i> ; pg 1-10	
KSW	64	YANAGAWA, H. et al., <i>Polarization-and Wavelength-Insensitive Guided-Wave Optical Switch with Semiconductor Y Junction</i> ; Journal of Lightwave Technology, VOL 8, No.8, Aug 1990, pg 1192-1197	

Examiner Signature	<i>Kerr & Wood</i>	Date Considered	<i>1/1/06</i>
--------------------	------------------------	-----------------	---------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two letter-code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard St. 16 if possible. ⁶Applicant is to place a check mark here if English language translation is attached.